

(12) **UK Patent Application** (19) **GB 2 172 935 A**
(43) Application published 1 Oct 1986

(21) Application No **8507785**

(22) Date of filing **26 Mar 1985**

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(51) INT CL⁴
F04D 29/38 H05B 3/10 // F04D 25/08

(52) Domestic classification (Edition H):
F1V 104 200 B
U1S 1953 2006 F1V

(56) Documents cited
None

(58) Field of search
F1V
F4S
Selected US specifications from IPC sub-class F04D

(54) **A cool and warm electric fan**

(57) An electric fan has blades 10 incorporating heater elements 11 for blowing cool/warm air by means of a selective switch. Slip rings 13 provide electrical connections to terminals 22, 23.

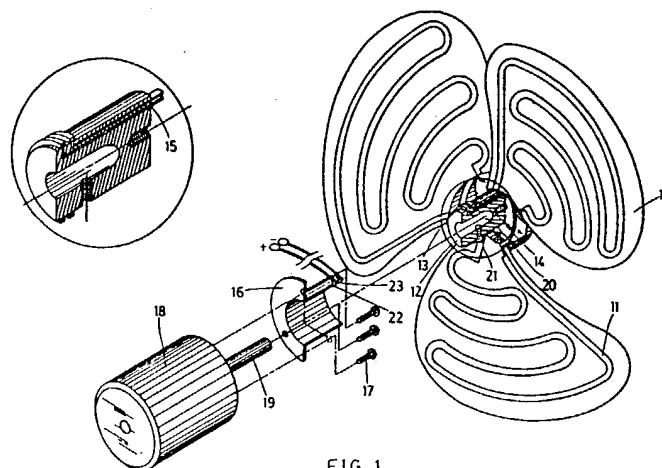


FIG. 1

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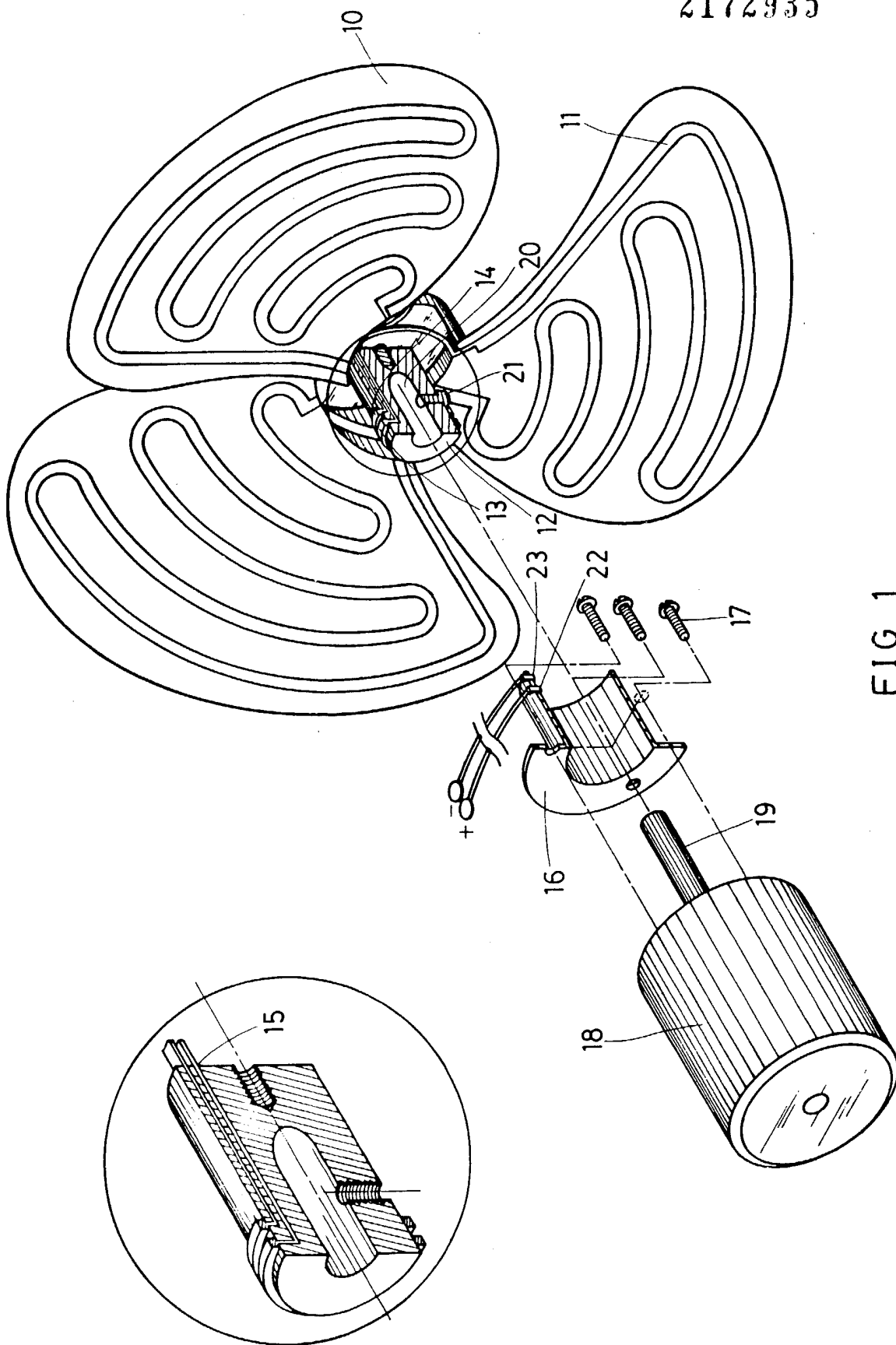


FIG. 1

SPECIFICATION

A cool and warm electric fan

5 This invention relates to an electric fan, particularly, with incorporated heater for blowing cool/warm air by means of a selective switch.

The changing weather, cold or hot, always causes our daily life uncomfortable. However, civilization and technology have allowed us to improve our living environments - such as electric fan, air-conditioner, air warmer, and so on. Although they can regulate their ambient temperature, none of them can change the ambient temperature satisfactorily; for instance, electric fan and air conditioner are always suitable at summer time but not useful in winter. On the other hand, air warmer is useful in winter, but it has to be put in storage in summer. Therefore, the existing means in room temperature regulation are mostly useful for a certain period of a year, and none of them can be deemed an economic device. In view of such defects, the inventor has created a cool and warm electric fan as a solution for the aforesaid problem.

The present invention provides an electric fan, particularly a cool and warm electric fan characterized by the installation of a thin heater strip on the back of fan blades, which can provide with warm air; when cool air is needed, switch off the power source for the heater, and it will operate as an ordinary electric fan.

An embodiment of this invention is described by way of example, with reference to the drawings in which:

Figure 1 is a perspective view of the present invention.

Figure 1 illustrates a perspective and exploded view of the present invention, of which the three fan blades 10 are arranged separately at an equal angle. A heater strip 11 is installed on the back of the fan blades 10 in a regularly bent manner. At the end of each of the fan blades 10, there is a blade shaft 12, which has two spaced conductive rings I 13 and II 14, from which two heater slots 15 for holding the heater strip 11 are extended parallel to the shaft 12. The heater strip 11, from one of the slot 15, after winding on the back of the three fan blades 10, is led to another slot 15. On the conductive rings I 13 and II 14, there is a tubular fixed ring 16 with a disc-like flange at one end. The fixed ring 16 is fixed to an electric motor 18 with screws 17. The motor 18 has its driving shaft 19 inserted in the driving shaft hole 20 at the center of the shaft 12. The driving shaft 19 is fixed to the shaft hole 20 with a fixing screw 21. The fixed ring 16 has two contacts which extend downward from its inner wall. The conductive rings I 13 and II 14 have conductive contacts 22 and 23 at their top respectively. The conductive contacts 22 and 23 contact with the conductive rings I 13 and II 14 respectively, while the motor 18 is rotating the fan blades 10.

In operation, the heater strip 11 generates heat energy upon the switch being turned on. Upon the

fan blades 10 rotating, the heat from the heater strip exchanges with the cool air, and then, the fan blows hot air.

In conclusion, the present invention is an improvement of the conventional fan by providing an additional function to form a fan which can provide cool and warm air. When blowing warm air, this invention consumes less energy than the current air warmer. Therefore, the present invention can be considered as an excellent electric fan design.

CLAIMS

1. A cool and warm electric fan comprising:
 - 80 an impeller including three fan blades which each has a wound heater strip on the back side;
 - an impeller shaft connected to the ends of the aforesaid fan blades with two circular conductive rings, beneath which there are two parallel heater slots for holding the aforesaid heater strip and a round driving shaft hole at its center;
 - 85 a fixed ring in a shape of short tube with a disc-like flange at one end, and having contacts for connection with power source; and
 - 90 an electric motor.
2. An electric fan as claimed in the Claim 1, wherein the said electric motor has its driving shaft inserted in the said round driving shaft hole and fixed therein with screws.
- 95 3. An electric fan as claimed in the Claim 1, wherein the fixed ring comprising two fixed conductive contacts to keep in contact with conductive rings during rotation.